City of

MARICOPA

AIRPORT FEASIBILITY STUDY

PHASE THREE

Chapter Four

Financial Analysis & Operating Scenario

Chapter Four

Financial Analysis and Operating Scenario

On February 19, 2008, the Director of Airports for the City of Maricopa presented the study progress to date to the Maricopa City Council. This presentation included the preferred site for the new Maricopa Airport as the current location of the Estrella Sailport. By a vote of 7-0, the City Council approved the recommended site and authorized the study consultant to proceed to the final phase of the study.

This chapter, along with Appendix B, represents the final phase of the Maricopa Airport Feasibility Study. This chapter will include an updated airport layout diagram, site-specific development cost estimates for construction of the airport, several options for management of the airport, and a cash flow analysis for operation of the airport.

The completed draft of the study is planned to be presented to the Planning Advisory Committee for this study, the City Planning and Zoning Commission, and the City Council. With Council approval of the final study report, the next planning steps can proceed. The next steps include an airport master plan and environmental assessment.

AIRPORT LAYOUT

Now that a specific site has been selected, the airport facility layout and runway environment must be revisited in order to optimize the space. This is particularly important for the selected site because there is an existing airport in this location.

The Estrella Sailport is a privately operated public-use airport that specializes in glider activity. There are over 40 based gliders at the airport and several single engine tow aircraft. The FAA estimates 20,000 yearly operations.

The Sailport has developed an international reputation for glider activities. Several national and international glider pilot champions call Estrella home. The meteorological conditions in the region provide for nearly ideal year-round flying. This business provides the Maricopa area with a unique economic stimulus that draws airport users and tourists from around the world. Therefore, if possible, it is important to allow the glider activities to continue while the new airport is being constructed.

In order to do so, the new general aviation runway is located parallel and 700 feet south of the paved glider runway. Being separated by 700 feet, simultaneous operations to both runways can take place under visual conditions (1,000-foot cloud ceiling and three mile visibility). When the new runway opens, the glider runway can continue to operate. Many of the existing hangar facilities will also be able to remain in place as they would be located outside the runway object free area surrounding the new runway.

The planned airport layout for the Estrella Sailport site is presented on **Exhibit 4A**. While the layout is similar to the prototype airport previously presented on Exhibit 3C, some adjustments were made in order to optimize the selected site. The taxiway system was redesigned in order to provide maximum efficiency of movement between the runway and hangar areas. In addition, a taxiway leading to the north side glider area is planned with the initial construction. This taxiway will allow better integration of the glider activities with the rest of the airport.

The long term parallel runway has been shifted slightly to the southwest in order to align the runway threshold and crossing taxiway. The intermediate and long term runway extensions remain the same.

On the landside, more detail on the hangar needs for each planning horizon is provided. Initial development should include a centrally located aircraft apron and FBO hangar complex. The initial apron encompasses 26,666 square yards of pavement. At least two T-hangar structures, each able to accommodate 20 storage units, are also planned. As demand warrants, more T-hangars can be added to the east and larger conventional hangars can be located to the west.

PROPERTY ACQUISITION

If possible, the entirety of the land needed for aviation purposes, now and in the future, should be acquired at the outset. As presented on **Exhibit 4B**, the airport footprint encompasses approximately 746 acres. This airport footprint includes 685 acres of land currently owned by the Arizona State Land Department and 61 acres that are currently privately owned.

06MP12-4A-04/09/08

Gila River Indian Community

NORTH

0 1000 2000

SCALE IN FEET

1300

Hiller Road Easment

Bureau of Land Management (BLM)

Private Ownership

Potential Industrial / Commercial

340'

Glider Terminal Area

125'

4,400' X 120' DIRT RUNWAY

4,400' X 75' RUNWAY

135'

300'

400'

5,500' X 100' RUNWAY

Hangar Area

1280

400'

100'

1,800'

1,000'

500'

Hangar Area Reserve

Potential Industrial / Commercial

Ellison

San Rafael

Prancer

Arizona State Land Department (ASLD)

Rio Bravo

1260

1220

Bureau of Land Management (BLM)

Private Ownership

LEGEND

- Airport Property Line
- Easement
- Roads
- Parcels
- Short Term
- Intermediate Term
- Long Term

City of Maricopa Incorporated 2003

Exhibit 4A
DEVELOPMENT SCHEDULE

06MP12-4B-04/24/08

Gila River Indian Community

NORTH

0 1000 2000

SCALE IN FEET

1300

Hiller Road Easment

Bureau of Land Management (BLM)

Private Ownership

218.02 Acres

1280

684.81 Acres

106.95 Acres

Ellison

1240

6.56 Acres

61.25 Acres

22.29 Acres

San Rafael

Prancer

Arizona State Land Department (ASLD)

Rio Bravo

1260

1220

3.08 Acres

Bureau of Land Management (BLM)

Private Ownership

LEGEND

- Airport Property Line
- Roads
- Parcels

City of Maricopa Incorporated 2003

Exhibit 4B
PROPERTY ACQUISITION

While some landowners will sell a portion of a property, the City of Maricopa should be aware of the opportunity that may exist to purchase the entire Arizona State Land Department (ASLD) property north of Highway 238. This includes an additional 218 acres to the northwest of the runways and 129 acres to the south west. This additional property may not be eligible for FAA funding as it is not necessary to accommodate forecast aviation activity.

If the City were to purchase the extra ASLD property, it could either be included as part of the airport or it could be excluded from the airport. If it is included as part of the airport, then all revenues generated by the land would be dedicated to the airport exclusively, per FAA grant obligations.

Approximately 61 acres of privately owned property to the west of the airport are identified for acquisition. Public records collected from the Pinal County Assessors office indicate that seven individual landowners may be impacted. These landowners would need to be fairly compensated for their property. Typically, independent land appraisals are obtained to determine the fair market value.

It should be noted that the actual aviation requirement for these properties would not occur until the runway is extended beyond the initial 5,500 feet to the ultimate length of 8,300 feet and a CAT-I instrument approach is instituted. Both of these actions are planned for the long term planning period, 10 years or more from the time of initial construction.

In the long term development configuration, the CAT-I runway protection zone would extend over 61 privately owned acres, as well as over 6.6 acres of federal land and 3.0 acres of roadway easement. If possible, the federal (Bureau of Land Management) land should be acquired. If not, then avigation easements should be acquired for both areas in order to prevent incompatible land uses.

DEVELOPMENT COST ESTIMATES

In Chapter Two, cost estimates were developed for a prototype airport. It was estimated that the total cost for the initial airport development would be approximately $45 million. The ultimate build-out of the airport was estimated at an additional $27 million.

Now that a specific site has been selected, site-specific cost estimates can be provided. **Exhibit 4A** shows the development phasing in graphic form. All elements shaded in yellow are considered for the initial construction of the airport. Those elements shaded in blue are considered for the intermediate timeframe (approximately 6-10 years) and those elements in red are considered long term projects.

The most significant fiscal change from the preliminary estimate is the cost of property acquisition. The total area recommended for the airport increased from 650 acres to 746 acres. The estimated cost per acre includes all ancillary items related to the purchase including legal fees and appraisals.

The short term development items are considered to be required for the initial construction of the airport. Items in the intermediate and long term planning horizon will be justified based upon actual demand. For example, the extension of the runway will only be justified by a critical aircraft (500 or more annual operations) requiring additional length. Expanded aircraft apron will be justified by growth in based and transient aircraft activity. Construction of the parallel runway system will be justified by the operational activity approaching the capacity of the single runway, particularly local operations.

Exhibit 4C presents the cost estimates for development of the proposed Maricopa Airport to be located at the current Estrella Sailport site.

INITIAL DEVELOPMENT

Even before design and construction begin, two planning documents must be completed: an airport master plan and an environmental assessment. Often these documents can be undertaken concurrently. The master plan will include the development of the official airport layout plan (ALP) which is used by the FAA when considering grant funding requests. The environmental assessment will detail any environmental concerns for the airport site and outline any necessary mitigation needs.

Once property has been acquired and funding appropriated, construction of the planned Maricopa Airport can begin. Much of the planning and engineering design work will have to precede the commencement of construction by at least a year. Construction estimates include 25 percent for design and construction administration and 15 percent for contingencies.

The site preparation cost includes such elements as clearing, grubbing, earthworks, and drainage. Approximately 130 acres of land will need to be prepared and graded for the initial airport development. This includes the runway and taxiway footprint, the runway safety area, the access roads and the terminal area.

Utilities will need to be extended to the airport. The estimate assumes that utilities will be located along Highway 238 at the time of construction. Some further detail may be needed to determine what costs, if any, will be incurred to extend utilities including water, electricity (capacity as needed), sewer, and data lines from the city area, if necessary. Recent City annexation of property in the area of the airport site may lead to the extension of utilities to the area. Without direct utility access, elements such as well water, septic systems and a local water treatment facility may be necessary.

The initial runway construction will provide for a runway that measures 5,500 feet long by 100 feet wide. The planned pavement strength rating is 30,000 pounds single-wheel loading (SWL) and 75,000 pounds dual-wheel loading (DWL).

A full length parallel taxiway is planned. The initial taxiway system will include five taxiway exits leading to the parallel taxiway and a sixth taxiway leading to the existing paved glider

06MP12-4C-04/30/08

	Total	FAA Eligible	ADOT Eligible	Local Share
Initial Construction				
Environmental/Planning Documentation	$800,000	$760,000	$20,000	$20,000
Property Acquisition - Airport (746 acres)	$37,300,000	$35,435,000	$932,500	$932,500
Site Preparation	$5,467,000	$5,193,650	$136,675	$136,675
Airport Utilities	$630,000	$598,500	$15,750	$15,750
Primary Runway (5,500' x 100')	$4,706,000	$4,470,700	$117,650	$117,650
Taxiway Paving (parallel and 6 entrances)	$3,482,000	$3,307,900	$87,050	$87,050
Taxilanes for T-hangars	$933,000	$886,350	$23,325	$23,325
Airfield Lighting and Marking	$1,128,000	$1,071,600	$28,200	$28,200
REILs	$70,000	$66,500	$1,750	$1,750
PAPIs	$112,000	$106,400	$2,800	$2,800
Aircraft Parking Ramp	$2,053,000	$1,950,350	$51,325	$51,325
Airport Beacon	$80,000	$76,000	$2,000	$2,000
Perimeter Fencing	$1,103,000	$1,047,850	$27,575	$27,575
Airport Access Road to North Side (un-paved)	$93,000	$88,350	$2,325	$2,325
Airport Access Road to South Side	$360,000	$342,000	$9,000	$9,000
Auto Parking	$350,000	$332,500	$8,750	$8,750
Weather Aids	$256,000	$243,200	$6,400	$6,400
Initial Construction Totals	**$58,923,000**	**$55,976,850**	**$1,473,075**	**$1,473,075**
Intermediate Term Construction				
Environmental/Planning Documentation	$900,000	$855,000	$22,500	$22,500
Terminal Building	$1,120,000	$450,000	$603,000	$67,000
Site Preparation	$2,229,000	$2,117,550	$55,725	$55,725
Primary Runway Extension (1,800' x100')	$1,540,000	$1,463,000	$38,500	$38,500
Taxiway Extension (parallel and entrance)	$941,000	$893,950	$23,525	$23,525
Airfield Lighting and Marking	$636,000	$604,200	$15,900	$15,900
Navigational Aid Relocation	$56,000	$53,200	$1,400	$1,400
Taxilanes for T-Hangars	$1,434,000	$1,362,300	$35,850	$35,850
Aircraft Parking Apron	$1,711,000	$1,625,450	$42,775	$42,775
Auto Parking	$292,000	$277,400	$7,300	$7,300
Intermediate Construction Costs	**$10,859,000**	**$9,702,050**	**$846,475**	**$310,475**
Long Term Construction				
Environmental/Planning Documentation	$900,000	$855,000	$22,500	$22,500
Site Preparation	$2,776,000	$2,637,200	$69,400	$69,400
Primary Runway Extension (1,000' x 100')	$856,000	$813,200	$21,400	$21,400
Taxiway Extension (parallel and entrance)	$599,000	$569,050	$14,975	$14,975
Airfield Lighting and Marking	$435,000	$413,250	$10,875	$10,875
Navigational Aid Relocation	$56,000	$53,200	$1,400	$1,400
Taxilanes for T-hangars	$1,655,000	$1,572,250	$41,375	$41,375
Aircraft Parking Apron	$4,107,000	$3,901,650	$102,675	$102,675
Auto Parking	$700,000	$665,000	$17,500	$17,500
Site Prep (north side - 100 acres)	$4,206,000	$3,995,700	$105,150	$105,150
Airport Utilities (north side)	$630,000	$598,500	$15,750	$15,750
Parallel Runway (4,400' x 75')	$2,823,000	$2,681,850	$70,575	$70,575
Parallel Taxiway (35' wide)	$1,961,000	$1,862,950	$49,025	$49,025
Airfield Lighting and Marking (parallel system)	$1,169,000	$1,110,550	$29,225	$29,225
REILs (parallel)	$70,000	$66,500	$1,750	$1,750
PAPIs (parallel)	$112,000	$106,400	$2,800	$2,800
MALSR (south side)	$2,100,000	$1,995,000	$52,500	$52,500
North Side Access Road (paved)	$863,000	$819,850	$21,575	$21,575
Airport Traffic Control Tower	$4,900,000	$4,655,000	$122,500	$122,500
Long Term Construction Costs	**$30,918,000**	**$29,372,100**	**$772,950**	**$772,950**
TOTAL DEVELOPMENT COSTS	**$100,700,000**	**$95,051,100**	**$3,092,500**	**$2,556,500**

KEY

FAA: Federal Aviation Administration
ADOT: Arizona Department of Transportation - Aeronautics Division
REIL: Runway End Identification Lights
PAPI: Precision Approach Path Indicators
MALSR: Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights

Exhibit 4C
ESTIMATED AIRPORT
DEVELOPMENT COSTS

runway. This taxiway will allow for integration of the existing glider services with the rest of the airport. The taxiways serving the new runway are planned at a width of 50 feet, while the taxiway leading to the glider area is planned at a width of 35 feet. Ultimately, the taxiway leading to the glider area will become the threshold taxiway to the planned future parallel runway.

An initial construction of T-hangars is planned. T-hangars are intended to house light single and multi-engine aircraft; therefore, the pavement does not need to be to the strength of the primary runway and taxiway surfaces. The footprint of the T-hangar structures is not included in this figure but is included in the site preparation calculations.

Airfield lighting includes runway, taxiway, terminal ramp lighting, and airfield signage such as taxiway designation signs. The markings for the runway should be non-precision which include runway designation, threshold bar, and runway centerline. Taxiway centerline markings and terminal area apron centerlines should also be marked. It should be noted that taxiway lighting is typically approved for airports serving at least 100 based aircraft. While the short term forecast estimated 80 based aircraft, the intermediate term forecast estimates 140 based aircraft. In an effort to save on development costs, the taxiway lighting should be included in the initial airport construction.

The runway should be outfitted with runway end identification lights (REILs) and precision approach path indicator lights (PAPIs). The REIL consists of two strobe lights, one set to either side of the runway threshold. These lights provide visual confirmation, during both the daytime and nighttime, of the runway end. The PAPIs provide visual approach path information for pilots. These units are located to the left side of the runway approximately 1,000 feet from the landing threshold. Pilots can interpret a series of red and white lights to determine if they are on the correct glide path for landing.

The initial terminal area ramp encompasses approximately 26,000 square yards of pavement. This ramp would have space for tie-down aircraft parking and transient aircraft parking. In addition, the airport FBO operators could locate their facilities facing this ramp.

An airport beacon is required and several weather aids should be planned including an automated weather observation system (AWOS-III), a segmented circle, and at least three windsocks. Full perimeter fencing should also be planned.

Two access roads should be planned with the initial airport construction. The first is the main entrance road from Highway 238. This road should be a paved two-lane road leading to the terminal area. A second road is planned from Rio Bravo Road to provide access from the east to the existing glider terminal area. Initially, this road is planned as a graded dirt road.

One element that is generally a low priority for FAA grant funding is airport

parking lots. A parking lot near the terminal area is planned with the initial construction. Parking lots are eligible for ADOT funding.

The total initial acquisition and development cost is estimated at $58.9 million. Of this total, approximately 97.5 percent is eligible for FAA and ADOT grant funding. The remaining $1.5 million would be the responsibility of the City of Maricopa.

INTERMEDIATE TERM DEVELOPMENT

As traffic grows, further development of the runway system and the hangar areas will be justified. The intermediate and long term projects correlate to these triggers being reached in these timeframes. It should be noted that aviation activity can experience unpredictable highs or lows. Rarely do the forecasts follow straight line growth curves. Therefore, the City of Maricopa should be prepared to accelerate development with demand, or delay a project, as necessary, when growth slows.

Planning is a critical element to the successful growth and operation of an airport. After the short term period, the local and national aviation conditions should be reassessed with an update to the master plan. An environmental assessment will also be necessary in order to proceed with the intermediate term projects. Both of these planning documents are included in the intermediate planning horizon.

An early project considered in the intermediate planning horizon is the construction of a general aviation terminal building. It is common for busy general aviation airports to provide facilities that include a common area, a pilot lounge, flight planning facilities, weather station, snack bar or restaurant, and pilot shop. Often the airport management offices will also be located in the terminal building.

The terminal building at an airport is the gateway to the community. When designed, it should be an aesthetically pleasing and representative of a community entrance. General aviation terminal buildings are eligible for FAA grant funding in the form of non-primary entitlements (NPE) only. Currently, the maximum potentially available from the FAA would be three years of NPE funds or $450,000. ADOT has actively participated in general aviation terminal buildings.

The first intermediate term project after planning is the design and engineering of the runway extension. Once again, the 1,800-foot planned runway extension will be justified and, therefore, eligible for FAA and ADOT grant funding, when the critical aircraft for the airport transitions from smaller business jets to larger business jets.

Site preparation for the extension and landside facilities includes approximately 53 acres. Site preparation includes clearing, grubbing, drainage, and earthworks (addition and removal of dirt) for grading purposes.

The runway extension is planned at 1,800 feet. Factors such as elevation (1,270 feet MSL) and average high month temperature (108 degrees Fahr-

enheit for July) and the critical aircraft (500 or more annual operations) are considered when planning the runway extension. The parallel taxiway is also extended with a new threshold taxiway planned. The medium intensity runway and taxiway lighting are also extended. The REILs and PAPIs will need to be relocated as well.

The terminal area ramp is also planned to be expanded at this time to accommodate a forecast growth in the number of based aircraft and transient operations. The auto parking serving the terminal area is also planned for expansion. The taxilanes to the T-hangar areas are extended providing access for approximately 100 new aircraft storage units.

Intermediate term projects are estimated at $10.9 million. Of this total approximately $9.7 million is eligible for FAA grant funding. An additional $846,000 is eligible for ADOT funding. The remaining portion, approximately $310,000, would be the responsibility of the City of Maricopa.

LONG TERM DEVELOPMENT

Along with continued landside hangar development, two major projects are planned for the long term. The first is a 1,000-foot extension of the primary runway, which would bring the total length to 8,300 feet. The second is the construction of a parallel runway measuring 4,400 feet long by 75 feet wide.

Prior to design of these two projects, appropriate planning documentation will need to be assembled. The master plan should be updated along with the ALP and an environmental assessment should be undertaken as is relates to any expansion of the facilities.

When the airport makes a further transition in critical aircraft from airport reference code (ARC) C-II to ARC D-III, an additional 1,000 feet of runway length may be justified. This extension would be intended to fully accommodate a critical aircraft represented by large business jets up to 100,000 pounds such as the Gulfstream V.

The runway and parallel taxiway are both extended 1,000 feet and a new threshold taxiway is planned. The runway and taxiway lighting will need to be extended. The runway marking will then need to be upgraded to precision markings which will additionally include markings for the down zone, the aiming point, and the edges.

The PAPIs will need to be relocated to provide the correct approach slope. The REILs may need to be relocated but a medium intensity approach lighting system with runway alignment indicator lights (MALSR) is planned for the west runway end at this time. When an approach lighting system is installed, there is no longer a need for the REILs on that runway end. Therefore, the REILs could be reserved for use on the parallel runway.

On the landside, taxilanes sufficient to support T-hangar expansion are planned. The terminal area ramp is expanded and additional auto parking is also planned to support both the T-hangar area and the terminal area.

The second major project in the long term planning period is the construction of a parallel runway system. During the previously planned master plan updates, it will become apparent if a parallel runway is justified. Actual annual operations will be the trigger for a parallel runway. According to FAA design standards, planning for a parallel runway should begin when operations reach 60 percent of capacity and construction should begin before 80 percent of capacity is exceeded. A single runway system can theoretically accommodate 230,000 annual operations. The long term forecast (20-year) for the new Maricopa Airport, is to reach 210,000 annual operations.

The estimated area for site preparation and drainage improvements for the parallel runway system is 100 acres. While this side of the airfield will have supported glider activities for a number of years by this point, utility upgrades are planned to be extended to the area.

The parallel runway is planned at 4,400 feet in length and 75 feet in width. The runway is intended to relieve the main runway of local training traffic. Mostly small single and multi-engine aircraft would utilize this runway, thus the dimensions do not need to be the same as the primary runway which can accommodate all general aviation aircraft at this point. The parallel runway would be designed to ARC B-II standards.

The parallel runway is located 700 feet, centerline-to-centerline, from the primary runway in order to allow simultaneous visual operations to both runways. A parallel taxiway is also planned between the two runways for circulation. There are six entrance taxiways planned to the new runway. The east side threshold taxiway was previously planned with the initial runway construction to provide access to the glider area. The three taxiways would extend from the new parallel runway, intersect with the parallel taxiway, and continue until reaching the primary runway.

Airfield lighting, marking, and signage are necessary for the parallel system. The parallel runway is planned with non-precision runway markings. The runway pavement strength rating is planned for 15,000 pounds SWL. The taxiways would have centerline markings. The taxiways would be 35 feet wide as opposed to the 50-foot width provided on those taxiways serving the primary runway. REILs and PAPIs are also planned for the parallel runway.

In anticipation of the continued growth in glider activity in this area, a dirt runway is also planned adjacent to the parallel runway. The dirt runway is located 135 feet, centerline-to-centerline, north of the parallel runway. It is planned to a width of 120 feet. Because gliders will come to a complete stop upon landing and must be towed to the terminal area, a separate glider runway is planned.

The access road to the north side terminal area will need to be altered once the parallel runway goes into place. It is planned as a paved two-lane road running parallel to the north property line before turning south to the north side terminal area.

The final project considered in the long term planning horizon is the construction of an airport traffic control tower (ATCT). While a tower would almost certainly be necessary in the long term (10-20 year time frame), it is difficult to determine precisely when it would be necessary. Typically, when annual operations reach the 100,000 to 150,000 level, a tower can be justified through a cost-benefit analysis.

Airport projects in the long term are estimated at approximately $30.9 million. Approximately 97.5 percent of the total is eligible for FAA and ADOT grant funding.

LANDSIDE CONSTRUCTION

The development costs have excluded costs associated with hangar development. Hangar space construction can be undertaken by the airport sponsor or by a private developer. When the airport sponsor constructs facilities, they retain ownership of the structure and act as the leasing agent. Private developers can lease land from the airport and construct hangars for their own use or for lease.

On **Exhibit 4A**, the area to the west of the terminal area is identified as "Hangar Area Reserve." All flight-line property must be reserved for direct aviation activity. In this study, approximately the first 1,000 feet from the parallel taxiway is reserved for these purposes. If aviation activity grows exponentially at this airport, this space is available for additional development of hangar facilities.

AIRPORT OWNERSHIP AND MANAGEMENT

The airport owner is responsible for the direction and management of one or more airports. An airport owner typically sees aviation as a powerful and positive economic force and believes that linking its community to the nation's aviation system will contribute to a community's growing economy.

The ownership of airports can take several different forms. Airports can be for public or private use. Public use airports can be under public or private ownership.

Most of the public general aviation airports in the country are owned by a local governmental entity (city or county) because airports are often viewed in much the same light as other services provided by governments such as parks or public transportation. Airports have an added benefit in that they have the potential to produce revenue through building and ground leases, fuel sales, or other revenue avenues.

Most of the public general aviation airports in the central Arizona region are owned by the local governmental entity. For example, Casa Grande Municipal, Chandler Municipal, and Mesa Falcon Field are all owned by the local jurisdiction (City).

In some cases, airports are owned by the state. In Arizona, the Grand Canyon National Park Airport is owned by the state and operated by the Department of Aeronautics.

Airports that are owned by municipalities, counties, or states, are typically run as a department within that governmental body. Policy direction comes from the city council, county board of supervisors, or in the case of Grand Canyon, directly from the State Transportation Board. Airports owned and operated by governmental entities often have access to the full bonding and taxing power of those entities for capital projects.

Some airports are owned and operated by a quasi-governmental body called an airport authority. These authorities are independent entities charged with the operation and oversight of an airport or a group of airports. Authorities are often governed by a board of directors who are appointed to lead the authority by a government official. Authorities are usually created to own and manage larger commercial service airports, but there are some small general aviation airports operating under an authority. In Arizona, airport authorities must be not-for-profit organizations.

In the central Arizona region, Phoenix-Mesa Gateway Airport is owned and operated by the Williams Gateway Airport Authority. The authority is a Joint Powers Airport Authority comprised of the Cities of Mesa and Phoenix, the Towns of Queen Creek and Gilbert, and the Gila River Indian Community. In southern Arizona, the Tucson Airport Authority operates Tucson International Airport and the general aviation airport, Ryan Field.

The management of an airport can take many forms. The most common form for general aviation airports is that the local governmental sponsor employs an airport manager and operates the airport much like any other city department. The sponsor is responsible for development of all airport priorities and for financial grant application from the FAA.

Some general aviation airport owners will enter into a lease management arrangement with a private company to manage the daily operations. This private company could be a professional airport operations company or simply the local airport fixed base operator (FBO). This arrangement benefits the airport owner because they don't have to employ dedicated airport management.

In this management arrangement, the airport owner will be responsible for all airport development and grant matching funds. This includes determining project priorities, applying for financial grants from the FAA, and providing matching funding.

An example of this management arrangement is Addison Airport in the Dallas, Texas area. The Town contracts with a professional airport operator who manages daily activity including building and land leasing for the Town. This is a for-profit company that benefits from efficient management of the airport.

Another form of airport management is a master lease arrangement. In this scenario, the airport sponsor (city or county) will contract with a separate entity, often a private company or a separate airport authority, for operation of the airport. The leasing organization

is responsible for all airport operations including leasing, capital project priority development, and grant matching. Grant applications are made through the airport sponsor.

Examples of this airport management arrangement include Laughlin/Bullhead International Airport in Bullhead City, Arizona, and Kingman Airport in Kingman, Arizona. Both of these airports are owned (sponsored) by their respective cities and counties but are operated under an airport authority with full responsibility for the airport, including project prioritization and grant matching.

Some public use general aviation airports are owned and operated by private companies. Stellar Airport in Chandler, Arizona is a local example. There is no government involvement in the ownership or operation of this airport. To date, this airport has not accepted any federal grants.

Public-use private airports can be eligible for federal grant funding. When any public-use airport, whether publically or privately owned, accepts federal capital improvement grants, that airport is obligated to maintain the useful life of that project, typically 20 years. Pearland Airport, outside Houston, Texas, is an example of a privately owned, public-use airport that receives federal grant funding.

CASH FLOW ANALYSIS

With the presentation of the site specific capital program, more detailed analysis can now be presented on the potential revenues and expenses associated with constructing and operating the airport. This cash flow analysis assumes that the City of Maricopa will operate the airport as a department within the City.

A preliminary cash flow scenario was developed in Chapter Two – Airport Market Analysis. Detailed revenues and expenses from several area general aviation airports were presented and utilized for comparison. In addition, Table 2M presented the cash flow for the prototype airport. In that cash flow analysis, it was shown that through responsible fiscal management, the airport can achieve a net positive cash flow within the long range planning period. This is still the case with the revised cash flow. **Table 4A** presents the update to the financial analysis based on site-specific criteria and recently obtained cost estimates.

OPERATING REVENUE

Airport revenues for general aviation airports are derived from leases and fees collected from users of the airport. The primary revenue sources are fuel flowage fees, aircraft tie-down fees, land rentals, and building space rentals. Some airports will also generate revenue from aircraft hangar rentals, provided the airport owns the hangar. As previously discussed in the capital program, all new hangar development is assumed to be undertaken by private developers.

The most significant revenue source for most general aviation airports is the sale of aviation fuel. There are two ap-

proaches to managing fuel sales at an airport. The first is for the airport sponsor to allow airport businesses, such as an FBO, to sell fuel directly to the customer. In exchange for the right to sell fuel on the airport, the FBO operator pays a per-gallon fuel flowage fee to the airport.

TABLE 4A
Financial Analysis ($2008)
Maricopa Airport Feasibility

	Initial Development	Intermediate Development	Long Range Development
Operating Revenues			
Fuel Flowage	$65,763	$223,281	$380,800
Tie-down Fees	11,520	16,920	45,720
Land Rentals	128,141	198,074	371,564
Terminal Rentals	N/A	28,800	73,440
Total Operating Revenues	**$205,423**	**$467,076**	**$871,524**
Operating Expenses			
Personal Services	$110,000	$130,000	$210,000
Maintenance and Supplies	130,000	160,000	250,000
Miscellaneous	25,000	35,000	60,000
Total Operating Expenses	**$265,000**	**$325,000**	**$520,000**
Operating Income/Loss	**$(59,577)**	**$142,076**	**$351,524**
Capital Improvement Financing			
Total CIP	$58,923,000	$10,859,000	$30,918,000
Federal and State Funding	$57,449,925	$10,548,525	$30,145,050
Remaining Local Share	**$1,499,325**	**$310,475**	**$772,950**
Debt Service 20 yrs. @ 6%			
New Debt Service	$151,086	$31,844	$79,277
Carry-over Debt Service	N/A	$151,086	$182,929
Total Debt Service	**$151,086**	**$182,929**	**$262,207**
Net Cash Flow	**$(210,662)**	**$(40,854)**	**$89,318**

NOTE: All costs are average annual estimates.
Source: Coffman Associates analysis

The second method is for the airport to sell fuel directly. In this analysis, it is assumed that the airport sponsor will encourage an FBO to invest in fuel storage capacity, delivery vehicles, and personnel to accomplish the fuel delivery functions.

Typical fuel flowage fees range from 4 to 12 cents per gallon. For this analysis, a fee of 10 cents per gallon was utilized. Once the airport sponsor begins to solicit FBO operators, this fee structure should be reconfirmed in comparison to other area general aviation airports.

The calculation of estimated annual fuel consumption has been updated based on recent interviews with area FBO operators. For AvGas (100 low-lead), a figure of 1,000 gallons per based piston aircraft was used. For transient piston operators, 20 gallons per visit was utilized. Jet A fuel sales were calculated as

50,000 annual gallons per based turbine aircraft and 300 gallons per transient turbine aircraft.

The ramp area that is centrally located to the runway system is a public aviation access space. This space is owned and maintained by the airport as it is planned to be constructed with federal grants. This ramp should provide not only access to the airport business, but also provide aircraft tie-down positions. The annual revenue for tie-downs is estimated at $360 per position.

Land is the greatest asset that an airport has. Airport property is unique in that it can provide access to the national air transportation system. Therefore, all property potentially providing that immediate access (i.e., flight-line property) must be reserved for direct aviation-related purposes. The airport sponsor can market that property to aviation-related businesses for a land lease fee. Land lease terms are typically 20 years plus extension options. This allows the developer time to recover their capital investment before the facilities revert to airport ownership. The airport operator can then design and build their own hangar facilities for their business or for lease. Any development on-airport should follow the master plan concept and the airport rules and regulations. It should be noted that airport property needed for aviation-related purposes now or in the future cannot be sold.

Land lease rates will vary on the airport depending on location and proposed use. For example, centrally located parcels intended for FBO use will generate a higher lease rate than parcels intended for T-hangars. Space for FBO hangars was estimated at $0.30 per square foot, while space for T-hangars was estimated at $0.15 per square foot.

When a terminal building is constructed, a portion of the space may be leased. The prevailing rate is estimated at $18 per square foot. It was further estimated that no more than 40 percent of the terminal building would be available for commercial lease.

OPERATING EXPENSES

Operating expenses include salaries and wages, employee benefits, utilities, maintenance, supplies, and administration expenses. The expenses presented are derived from analyst experience and comparisons to general aviation airports of similar size at each planning horizon.

In the initial development phase, approximately $110,000 is estimated for personnel services. This would be salary and benefits for an airport manager and a maintenance worker. Over time, both the salaries and the number of employees increase. By the long term, a common airport management arrangement would include a manager, a secretary, and two or three maintenance/operations positions.

Other significant costs are incurred by various maintenance tasks and supplies. A separate category for miscellaneous expenses is included.

NET OPERATING INCOME/LOSS

As presented in the table, in the initial development term (years 0-5), it is estimated that the airport would experience a net annual operating loss. This is not unusual for most general aviation airports. This certainly could be expected for a new airport, just as it is common for a new business to have an operating loss for a period of time after start-up. In growing and busy aviation activity areas of the country, such as Arizona, general aviation airports are much more likely to have a net positive operating situation once the airport is established.

In the intermediate planning period, approximately 10 years, the airport could be expected to show a substantial net positive cash flow of $142,000 from an operating perspective. By the long term (approximately 20 years), the airport more than doubles its net positive cash flow to $351,000 annually.

CAPITAL FUNDING AND NET CASH FLOW

It should always be a goal of the airport to be able to generate enough revenue to not only break even from an operating perspective but also to fund matching grants for major capital improvements. The bottom half of **Table 4A** presents the financial impact of the airport construction and subsequent capital improvements.

In the initial development phase, approximately $58.9 million is needed to construct the airport. Approximately $1.5 million of the total would be the responsibility of the City as a matching grant. In the table, it is assumed that the local share would be financed in full. Assuming a 20-year amortization schedule at a six percent annual interest rate, the airport would assume an annual debt service of $151,086.

In the intermediate term, approximately $10.9 million in capital improvements is planned. Of this total, approximately $310,000 would be the responsibility of the City. Were the City to finance this portion, approximately $32,000 would be added to the amortization schedule.

In the long term, approximately $31 million in capital projects is planned with the City responsible for approximately $773,000. This would add approximately $79,000 to the debt service.

Over time, the debt service will be reduced as the airport or City pays down the financing. In the short term, the City is forecast to realize a net negative cash flow when considering capital expenditures. By the intermediate planning term, the airport nearly breaks even and by the long term, the airport is fully self-sustaining with the ability to fund all airport operations and capital improvements directly from revenues generated on the airport.

SUMMARY

In this final phase of the Maricopa Airport Feasibility Study, the planned airport layout has been optimized to the selected site. As a result of this optimization, the Estrella Sailport, currently situated on the selected site, will be

able to remain operational both during and after construction of the new airport. The existing Estrella Sailport runways and facilities will not be disrupted until such time as a second parallel runway is needed for the airport. This is forecast in the long term planning period or approximately 20 years after construction.

A development schedule and cost has been presented in this chapter. The initial construction of the airport is estimated to cost approximately $58.9 million. Of this total, the airport sponsor, the City of Maricopa, would be responsible for approximately $1.5 million. The intermediate planning term, years 6 through 10 after construction, estimates $10.9 million in capital needs, based on the airport achieving certain demand triggers such as growth in based aircraft and operations. Of this total, the City would be responsible for approximately $310,000. By the long term planning period (20 years), approximately $30.9 million in capital improvements may be justified. The City would be responsible for approximately $800,000 of this total.

While much of the initial airport development and subsequent capital projects are eligible for grant funding, realistically not all will be funded. Airport capital projects will be prioritized and funded as it is available. The figures shown in the development costs therefore represent the baseline starting point for funding eligibility.

Several airport management scenarios were discussed. The most common management system for a general aviation airport is for the airport to operate as a department of the City. Other forms include contracting out daily operations of the airport to a private company or leasing the entire airport to a private company. This study has assumed that the airport would be operated by the City of Maricopa.

The final section of this chapter presented a cash flow analysis. It was shown that through reasonable management of the airport and the use of standard accounting principles, the airport can become profitable from an operating perspective by the intermediate planning period (years 5-10). When including matching grant funds for federal grants for capital improvements, the airport can become entirely self-sustaining within 20 years. Active management of the airport finances by a dedicated airport manager is recommended in order to achieve these goals.

Now that the Maricopa Airport Feasibility Study is complete, it will be presented to the City Council for approval. The next step in the planning process is the development of an airport master plan, airport layout plan, and environmental assessment.

Appendix B

Noise Evaluation & Agency Coordination

Appendix B
NOISE EVALUATION AND AGENCY COORDINATION

Environmental considerations are important when developing the feasibility of and siting a new airport. One of the most noticeable environmental concerns surrounding an airport is the impact of noise now and into the future. In an effort to quantify the potential noise impacts of a new general aviation airport located on the current site of the Estrella Sailport, noise contours were developed. This analysis is presented below.

In addition, numerous federal, state, and local agencies with environmental jurisdiction were contacted regarding the selected airport site. Each was supplied a graphic layout of the airport site and asked to provide any environmental concerns with the site. Their responses are provided below.

NOISE EXPOSURE ANALYSIS

Aircraft sound emissions are often the most noticeable environmental effect an airport will produce on the surrounding community. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable.

To determine the noise-related impacts that the proposed Maricopa Airport site could have on the surrounding environment, noise exposure patterns were analyzed for both the forecast short term airport activity and the projected long term activity.

The basic methodology employed to define aircraft noise levels involves the use of a mathematical model for aircraft noise predication. The Yearly Day-Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the Federal Aviation Administration (FAA), the Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility, meaning that noise levels below 65 DNL are considered compatible with underlying land uses.

DNL is defined as the average A-weighted sound level as measured in decibels (dB) during a 24-hour period. A 10dB penalty applies to noise events occurring at night (10:00 p.m. to 7:00 a.m.). DNL is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area. Most federally funded airport noise studies use DNL as the primary metric for evaluating noise.

Since noise decreases at a constant rate in all directions from a source, points of equal DNL noise levels are routinely indicated by means of a contour line. The various contour lines are then superimposed on a map of the airport and its environs. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. DNL calculations do not precisely define noise impacts. Nevertheless, DNL contours can be used to: (1) highlight existing or potential incompatibilities between an airport and any surrounding development; (2) assess relative exposure levels; (3) assist in the preparation of airport environs land use plans; and (4) provide guidance in the development of land use control devices, such as zoning ordinances, subdivision regulations, and building codes.

The noise contours for Maricopa Airport have been developed from the Integrated Noise Model (INM), Version 7.0. The INM was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified by the FAA as one of the two models acceptable for federally funded noise analysis.

The INM is a computer model which accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the database of the INM, which relate to noise, distances, and engine thrust for each make and model of aircraft type selected.

Computer input files for the noise analysis contain operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan. The operational

data and aircraft fleet mix are summarized in **Table B1**. These estimates correspond to the aviation activity forecasts presented in Chapter Two of this document.

TABLE B1
Noise Model Input: Aircraft Operations
Proposed Maricopa Airport

Aircraft Type	INM Descriptor	Baseline	20-year Long Range
ITINERANT OPERATIONS			
Turbojet			
Business Jet	LEAR35	200	2,700
Business Jet	CNA500	200	2,700
Business Jet	MU3001	0	300
Business Jet	CNA55B	50	1,300
Business Jet	CL600	0	1,300
Business Jet	GIV	0	600
Business Jet	LEAR25	50	100
Subtotal		500	9,000
Piston/Turboprop/Helicopter			
Single Engine Variable	GASEPV	4,400	29,250
Single Engine Fixed	GASEPF	4,400	29,250
Multi-engine	BEC58P	500	5,000
Turboprop	DHC6	500	5,000
Helicopter	H500D	1,000	6,500
Subtotal		10,800	75,000
TOTAL ITINERANT		**11,300**	**84,000**
LOCAL OPERATIONS			
Piston/Turboprop/Helicopter			
Single Engine Fixed	GASEPV	9,500	56,000
Single Engine Variable	GASEPF	9,500	56,000
Multi-Engine Fixed	BEC58P	1,000	7,000
Helicopter	H500D	1,100	7,000
Subtotal		21,100	126,000
TOTAL LOCAL		**21,100**	**126,000**
TOTAL ACTIVITY		**32,400**	**210,000**

Source: Coffman Associates analysis utilizing Integrated Noise Model (INM) v.7.0

The runway use percentages are summarized in **Table B2**. In the long term planning period at full airport build-out, three runways are proposed. The primary runway, at a length of 8,300 feet, is assigned all large aircraft, particularly business jets. This runway is also assigned 50 percent of total activity. The shorter parallel runway is assigned single and multi-engine aircraft only, as this is primarily a training runway. Forty percent of all operations are placed on this runway. In the long term, a dirt runway is also planned. This runway is intended for glider activity and, therefore, would only support single engine tow aircraft and approximately 10 percent of total operations.

TABLE B2
Long Term Runway Use
Proposed Maricopa Airport

Runway	Length	Surface	Runway Use Percentage	Assignment Notes
Runway 6R-24L	8,300	Paved	50%	All Jets
Runway 6C-24C	4,400	Paved	40%	Single and Multi-Engine
Runway 6L-24R	4,400	Dirt	10%	Single Engine

Source: Coffman Associates Analysis

The long term aircraft noise contours generated using the aforementioned data for the planned Maricopa Airport are depicted on **Exhibit B1**. The 75 and 70 DNL contours remain on airport property. The 65 DNL extends off airport property slightly to the north but remains on the Arizona State Land Department (ASLD) parcel.

As a point of reference, the 60 and 55 DNL contours are also depicted on the exhibit. While there is no federal mandate to mitigate noise impacts to the underlying land uses, consideration should be given to limiting residential land uses in these areas, particularly on approaches to the runways. Some states have taken to developing sophisticated land use measures that extend out from the airport to distances of up to 14,000 feet. These measures place greater limits on residential density the closer one gets to the airport. The states with the most extensive airport compatible land use guidance are California, Florida, Oregon, Washington, and Wisconsin.

COMPATIBLE LAND USE

Title 14 of the Code of Federal Regulations (14 CFR), Part 150 recommends guidelines for planning land use compatibility within various levels of aircraft noise. As the name indicates, these are guidelines only; Part 150 explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities.

Based upon the results of the noise modeling efforts, the future 65 DNL will extend slightly off airport property to the north. The airport should make every effort to positively control those areas that fall within the 65 DNL. Appropriate zoning and other land use measures can provide the necessary land use controls that fee-simple acquisition can provide.

This area is currently zoned as an employment center which is compatible with the 65 DNL provided the ultimate land use is industrial or commercial in nature. **Exhibit B2** presents a matrix of compatible land uses surrounding airport.

06MP12-B1-5/6/08

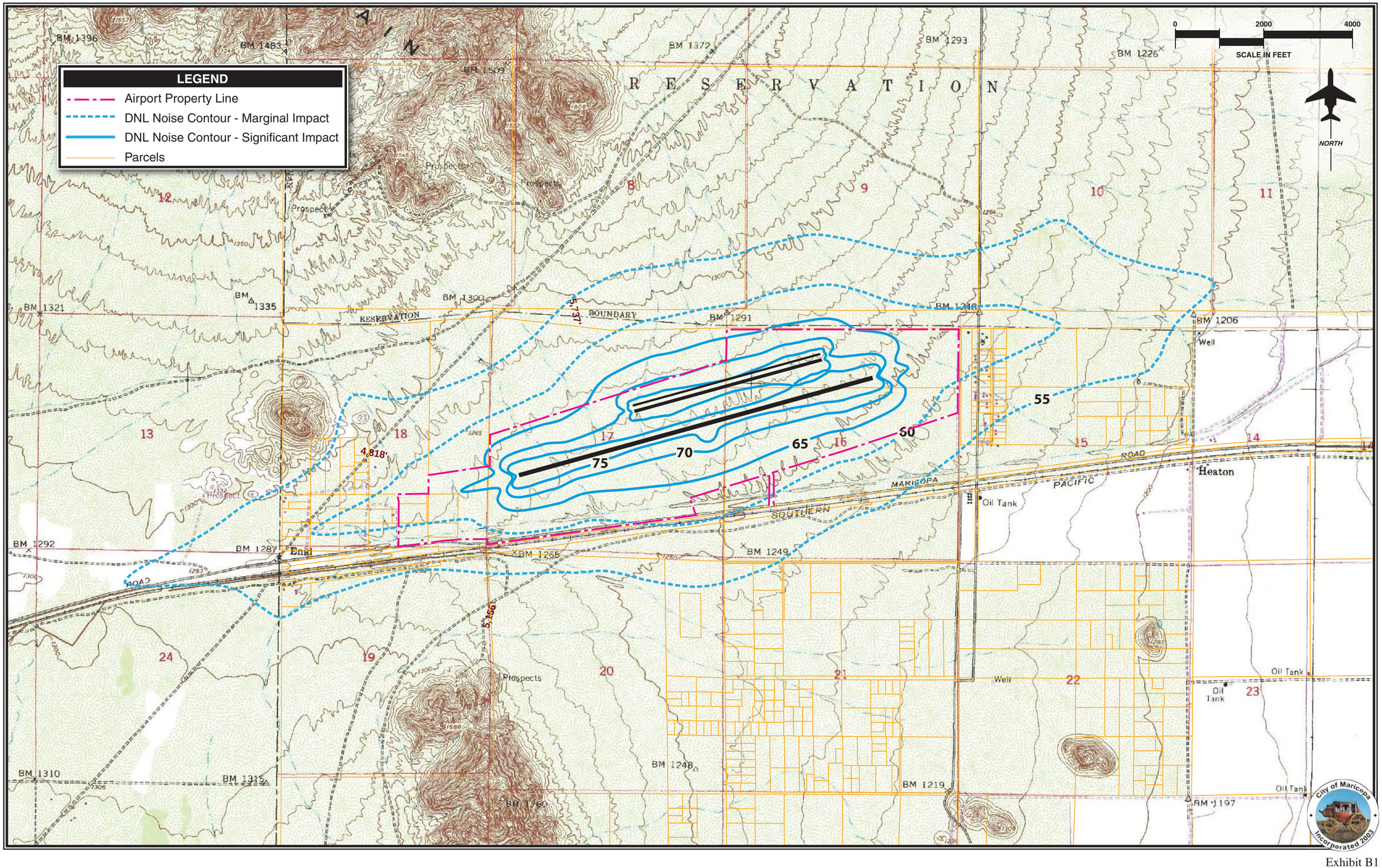

Exhibit B1
BASELINE +20 YEARS
NOISE EXPOSURE CONTOURS

07SP04-B2-5/7/08

LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[1]	N[1]	N[1]	N	N
PUBLIC USE						
Schools	Y	N[1]	N[1]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[2]	Y[3]	Y[4]	Y[4]
Parking	Y	Y	Y[2]	Y[3]	Y[4]	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y[2]	Y[3]	Y[4]	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y[2]	Y[3]	Y[4]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[6]	Y[7]	Y[8]	Y[8]	Y[8]
Livestock farming and breeding	Y	Y[6]	Y[7]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y[5]	Y[5]	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally-determined land uses for those determined to be appropriate by local authorities in response to locally-determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.

Exhibit B2
LAND USE COMPATIBILITY GUIDELINES

KEY

Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor-to-indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES

1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor-to-indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB, respectively, should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

5 Land use compatible provided special sound reinforcement systems are installed.

6 Residential buildings require a NLR of 25.

7 Residential buildings require a NLR of 30.

8 Residential buildings not permitted.

Source: ***14 CFR Part 150***, Appendix A, Table 1.

Many land uses such as parking lots, roadways, commercial, manufacturing, and industrial development are permissible in the 65 DNL. A residential land use would be non-compatible and is strongly discouraged within the 65 DNL. Often, mixed land uses can include some residential development. This circumstance should be avoided either through zoning or airport acquisition.

The primary goal of compatible land use planning is to achieve and maintain compatibility between the airport and its surrounding community. Inherent in this goal is the assurance that the airport can maintain or expand its size and level of operations to satisfy existing and future aviation demand. The protection of the investment in a facility such as an airport is of great importance. At the same time, a person who lives, works, or owns property near an airport should be able to enjoy the location without infringement by noise or other adverse impacts of the airport.

As the airport grows in the overall number of operations and as the fleet mix changes to include more operations by larger general aviation aircraft, such as turboprops and business jets, the extent of noise impacts can be expected to grow accordingly. Advancements in aircraft engine technology are progressing rapidly and the noise generated by today's sophisticated jet aircraft is far less than that generated just ten years ago. Further noise reduction technology can be expected to be applied in the future to aircraft.

The visual impact of aircraft in the air would likely increase through the planning period although the air traffic pattern, as managed by the ATCT, would not expand significantly. In the future, the number of aircraft in the pattern may increase due to the increase in operations, but the extent of the pattern is not expected to change.

AGENCY COORDINATION

As part of the environmental evaluation, various federal, state, and local agencies with environmental jurisdiction were contacted. Each of these agencies was provided with a letter describing the selected airport site and a graphic showing the runway superimposed onto an aerial photograph. Letters were sent to the following agencies in February 2008, and replies were received from those agencies in **bold**:

National Park Service, Intermountain Region
Arizona Department of Environmental Quality – Water Quality Division
Arizona Department of Environmental Quality – Waste Programs Division
Arizona Department of Environmental Quality – Air Quality Division
State Historic Preservation Office (Arizona)
State of Arizona Game and Fish
Pinal County Public Works Department
City of Maricopa –
Planning and Economic Development (Comments received at PAC)

U.S. Department of Interior - Fish and Wildlife Service
U.S. Army Corps of Engineers
Arizona State Land Department
Pinal County Division of Environment and Health
Pinal County Planning and Development Services
Gila River Indian Community – Planning and Development

The following pages provide a copy of the environmental scoping letter sent to the agencies and the responses received.

Coffman Associates
Airport Consultants

February 20, 2008

Dear :

The City of Maricopa, in cooperation with the Arizona Department of Transportation, has commissioned our firm to prepare an Airport Feasibility Study to provide a preliminary market analysis of the potential for a new general aviation airport to serve the City of Maricopa and western Pinal County.

The current phase of the study is to evaluate potential airport sites. The initial process of identifying candidate sites included the review of 14 potential sites. In order to determine the most desirable site for an airport, a variety of engineering factors (such as proximity and access, site layout and design, earthwork and drainage, airspace, obstructions, and navigational conditions) as well as environmental factors (such as property acquisition, physical resources, ecological resources, farmland resources, and historical and cultural resources) were analyzed.

Our initial screening study resulted in the selection of the existing Estrella Sailport as the most feasible site. The greatest advantages for this site are its location adjacent to the state highway, it is an existing (private) airport site, and most of it currently belongs to a single land owner, the Arizona State Land Department. In addition, the city has already considered this site as a potential airport site in its community planning.

The purpose of this correspondence is to solicit your comments regarding environmental resources and sensitivities potentially associated with, or affected by, the candidate site depicted on the enclosed exhibit. The candidate site is located on the United States Geologic Survey (USGS) Enid quadrangle topographic map within Township 4S and Range 2E. Your review and comment will be used to document resources which could affect the viability of this site.

Please forward any written comments to me by March 28, 2008, at the address on the letterhead. As another option, you may fax or e-mail your comments to me at:

FAX: (816) 524-2575
E-mail: asteele@coffmanassociates.com

Kansas City • Phoenix
237 N.W. Blue Parkway, Suite 100, Lee's Summit, MO 64063 • Phone: 816.524.3500 • FAX: 816.524.2575

If you have any questions or need additional information, you may contact me by e-mail or at (816) 524-3500. Thank you for your consideration and timely response.

Sincerely,

Angela Steele
Airport/Environmental Planner

Enclosures

C: Patrick Taylor, Coffman Associates

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Stephen A. Owens
Director

March 10, 2008

Ms. Angela Steele, Airport/Environmental Planner
Coffman Associates
237 N.W. Blue Parkway, Suite 100
Lee's Summit, MO 64063

Location: Pinal County/City of Maricopa: Airport Feasibility Study – Estrella Sailport

Dear Ms. Steele:

The Air Quality Division has reviewed the proposed project, as described in your letter, dated February 20, 2008, that was submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act Section 176(c)(1); 58 Federal Register 63214-63259; Title 40 Code of Federal Regulations Part 51, Subpart W §§ 51.850-51.860; Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-160; and Arizona Administrative Code R18-2-348 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason(s):

☒ Not in a Nonattainment or Maintenance area

While the Estrella Sailport area is in an attainment area, it is near areas that have experienced PM10, 8-hour ozone and carbon monoxide problems in both Maricopa and Pinal counties, which may be affected by prevailing winds during the development, completion and operation of the proposed airport facility. It is important to consider that the general area is experiencing, and will continue to experience rapid population expansion for years to come and refer you to Executive Order 2007-03, Improving Air Quality, paragraph 6 (enclosed). To comply with other applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following additional information is provided:

REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

This action, plan or activity may temporarily increase ambient particulate matter (dust) levels. Particulate matter 10 microns in size and smaller can penetrate the lungs of human beings and animals and is subject to a National Ambient Air Quality Standard (NAAQS) to protect public health and welfare. Particulate matter 2.5 microns in size and smaller is difficult for lungs to expel and has been linked to increases in death rates; heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections; asthma attacks and cardiopulmonary obstructive disease (COPD) aggravation. It is also subject to a NAAQS.

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

I. Site Preparation and Construction
   A. Minimize land disturbance;
   B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air
   C. Cover trucks when hauling soil;
   D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
   E. Stabilize the surface of soil piles; and
   F. Create windbreaks

II. Site Restoration
   A. Revegetate any disturbed land not used;
   B. Remove unused material; and
   C. Remove soil piles via covered trucks.

The following rules applicable to reducing dust during construction, demolition and earth moving activities are enclosed:

- ☒ Arizona Administrative Code R18-2-604 through -607
- ☒ Arizona Administrative Code R18-2-804

Should you have further questions, please do not hesitate to call Dave Biddle, of the Planning Section Staff, at (602) 771-2376.

Very truly yours,

Diane L. Arnst, Manager
Air Quality Planning Section

Enclosures

cc: Henry R. Darwin, EV Administrative Counsel
David A. Biddle, Environmental Program Specialist
File No. 176763

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Stephen A. Owens

March 7, 2008

Ms. Angela Steele
Coffman Associates
237 N.W. Blue Parkway, Suite 100
Lee's Summit, MO 64063

Re: Environmental Screening for Preferred Airport Site, Maricopa, AZ

Dear Ms. Steele:

The Arizona Department of Environmental Quality (ADEQ) received your letter concerning environmental resources associated with or that may be affected by the selection of Estrella Sailport as a new general aviation airport to serve the City of Maricopa and western Pinal County. While it is somewhat difficult to comment on the proposal as little to no information has been provided about potential improvements at the Sailport, we offer the following general comments with respect to water quality and water resources.

ADEQ's Water Quality Division is responsible for permitting and certification decisions for proposed discharges to surface waters of the United States, under the federal Clean Water Act and to groundwater under the State aquifer protection program. A review of the site finds no perennial or intermittent surface waters in the immediate vicinity and no waters listed as impaired.

Should Estrella Sailport be selected as the general aviation airport, any additions or expansions to the airport that resulted in a discharge to waters of the U.S., would need to be permitted under the Arizona Pollutant Discharge Elimination System (AZPDES) program. Discharges that may be anticipated during the course of this project include stormwater runoff from disturbed areas during runway construction or the erection of buildings, hangars or equipment.

> Stormwater discharges associated with construction activities (clearing, grading, or excavating) which disturb one acre or more must obtain coverage under the AZPDES Construction Stormwater General Permit (AZG2003-001) which also requires development of a Stormwater Pollution Prevention Plan (SWPPP). Refer to the enclosed "Steps to Obtain Coverage" document for directions on how to file for permit coverage. The Construction Stormwater Permit, SWPPP checklist, and associated forms are available on ADEQ's website at: http://www.azdeq.gov/environ/water/permits/ stormwater.html#const. For questions on the Construction Stormwater program and permit coverage, please contact Shirley Conard at 602-771-4632 or by e-mail at sc4@azdeq.gov

There is no discussion of how wastewater will be handled. If an on-site wastewater treatment system (e.g., septic tank) will be installed, permits will likely be obtained from Pinal County Environmental Services Department, which has been delegated the review and issuance of certain general permits by ADEQ. If a wastewater treatment facility is anticipated, there would be additional permits and approvals needed including an individual Aquifer Protection Permit and a permit for the collection system. Once the details for treatment and disposal of wastewater have been further defined, please contact David Burchard at 602-771-4298 or by email at db2@azdeq.gov for further guidance.

Construction related to the project may require a CWA Section 404 Permit. If an individual 404 permit is required, the State will be asked to provide a CWA Section 401 water quality certification for the project. These conditions will be incorporated into the Section 404 permit to ensure that the permitted activities will not result in a violation of the State's surface water quality standards. For questions relating to CWA 401/404 please contact Bob Scalamera at 602-771-4502 or by e-mail at rs3@azdeq.gov.

Lastly, as the current Sailport borders the Gila River Indian Community, we would suggest you contact the tribe to solicit any questions or concerns they may have with the proposed project. Two possible contacts for the tribe are: Denzil Jones, Director of Public Works at Denzil.Jones@gric.sns.us or Glen Stark, Manager, Water Quality Program at stark@gilanet.net.

ADEQ appreciates the opportunity to provide these comments and we look forward to receiving notice of availability of the environmental assessment. Please contact the staff members noted above for the specific program or contact me directly at 602-771-4416 for further assistance.

Sincerely,

Linda Taunt, Deputy Director
Water Quality Division

Coffman Associates
Airport Consultants

February 20, 2008

Ms. Roxanne Runkel
Planning Technician
National Park Service, Intermountain Region
12795 West Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287

Dear Ms. Runkel:

The City of Maricopa, in cooperation with the Arizona Department of Transportation, has commissioned our firm to prepare an Airport Feasibility Study to provide a preliminary market analysis of the potential for a new general aviation airport to serve the City of Maricopa and western Pinal County.

The current phase of the study is to evaluate potential airport sites. The initial process of identifying candidate sites included the review of 14 potential sites. In order to determine the most desirable site for an airport, a variety of engineering factors (such as proximity and access, site layout and design, earthwork and drainage, airspace, obstructions, and navigational conditions) as well as environmental factors (such as property acquisition, physical resources, ecological resources, farmland resources, and historical and cultural resources) were analyzed.

Our initial screening study resulted in the selection of the existing Estrella Sailport as the most feasible site. The greatest advantages for this site are its location adjacent to the state highway, it is an existing (private) airport site, and most of it currently belongs to a single land owner, the Arizona State Land Department. In addition, the city has already considered this site as a potential airport site in its community planning.

The purpose of this correspondence is to solicit your comments regarding environmental resources and sensitivities potentially associated with, or affected by, the candidate site depicted on the enclosed exhibit. The candidate site is located on the United States Geologic Survey (USGS) Enid quadrangle topographic map within Township 4S and Range 2E. Your review and comment will be used to document resources which could affect the viability of this site.

Please forward any written comments to me by March 28, 2008, at the address on the letterhead. As another option, you may fax or e-mail your comments to me at:

FAX: (816) 524-2575
E-mail: asteele@coffmanassociates.com

If you have any questions or need additional information, you may contact me by e-mail or at (816) 524-3500. Thank you for your consideration and timely response.

Sincerely,

Angela Steele
Airport/Environmental Planner

Enclosures

C: Patrick Taylor, Coffman Associates

The National Park Service reviewed this project, and determined that no parks will be affected; therefore, we have no comments.

Signed: Date: 3/19/08

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

GOVERNOR
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DIRECTOR
DUANE L. SHROUFE
DEPUTY DIRECTOR
STEVE K. FERRELL

February 26, 2008

Angela Steele
Coffman Associates
237 N. Blue Parkway, Suite 100
Lee's Summit, MO 64063

Re: Maricopa candidate airport site.

Dear Ms Steele:

The Arizona Game and Fish Department (Department) has reviewed your request, dated February 20, 2008, regarding environemental resources and sentivities associated with the above-referenced project area. The Department's Arizona On-Line Environmental Review Tool (Tool) has been accessed and current records indicate the presence of no special status species in the project vicinity (3-mile radius). There are, however, two Indian reservation within 3 miles of the site that may present cultural issues.

This information can now be provided to you almost instantaneously and is designed to replace the need for requests via writing by fax, mail, or email for most projects. The information is generated utilizing an interactive on-line tool, which can be accessed via the Internet at http://www.azgfd.gov/hgis/. The Tool allows you to submit land and water projects on-line by following a few simple steps.

The Department has no further comments at this time. Please refer to the project receipt for general project type concerns. If you have any questions regarding this letter, please contact me at (623) 236-7513. General status information, county and watershed distribution lists and abstracts for some special status species are also available on our web site at http://www.azgfd.gov/hdms.

Sincerely,

Daniel E. Nelson
Project Evaluation Program Specialist

Attachment

cc. Russ Haughey, Region 6

Angela M. Steele

From: djacobs@azstateparks.gov

Sent: Wednesday, March 19, 2008 7:14 PM

To: Angela M. Steele

Subject: airport feasibility study-Maricopa, Arizona

Angela-
The location of the existing Estrella Sailport has **not** been assessed for cultural resources. Its location on the landscape suggests it certainly should contain some archaeological sites; we do not have any tribal records for the tribal land, so all of the information about the land on the GRIC is tribal information and GRIC should be contacted. The archaeological surveys for Maricopa Road [for ADOT] and also the pipelines to the northwest of the proposed airport did not identify anything close to the proposed airport location. Of course, ASLD as a land owner will request a cultural resources assessment.
David Jacobs, Arizona State Historic Preservation Office

Angela M. Steele

From: AJ Blaha [AJ.Blaha@co.pinal.az.us]
Sent: Monday, March 03, 2008 6:03 PM
To: Angela M. Steele
Cc: Gregory Stanley; Jim Petty
Subject: City of Maricopa Airport Feasibility Study

Attachments: Pinalcounty2007v2.pdf

Pinalcounty2007v2.pdf (8 MB)

Ms. Steele,

Our director, Greg Stanley, sent me you letter requesting comments on the environmental resources and sensitivities potenially associated with the City of Maricopa's proposed airport location at the Estrella Sailport.

First, from a pilot's standpoint the site has several hazards to pilots in the form of three, large hill masses to the southwest, west, and northwest of the Runway 06 approach. These hills are approximately 5,000 feet to 6,000 feet MSL and from 0.5 to 1.0 miles from the end of the runway. They would pose a threat as they are well within the General Aviation pattern distance (0.5 to 1.0 miles) and above pattern altitude (2,300 feet MSL). The nearest hill mass to the west would restrict instrument approach minimums to Runway 06. There is another smaller hill mass to the southeast of similar height that could pose a problem although it is approximately 1.5 miles from the runway. However, this would be within jet pattern distances. The hill masses would also create irregular, swirling wind patterns in addition to up and down drafts (which is the reason for the choice of this location for a sailplane field).

In addition to these hazards to avigation, the area has mapped earth fissures as depicted on the attached Arizona Geological Survey map (Heaton area). These will create unstable soil conditions for the proposed airport. The nearby Casa Grande Municipal Airport is experiencing large cracks in the taxiways which continue to widened, and for which the asphalt pavement experts have been unable to determine the cause.

If we can be of any additional service please let us know.

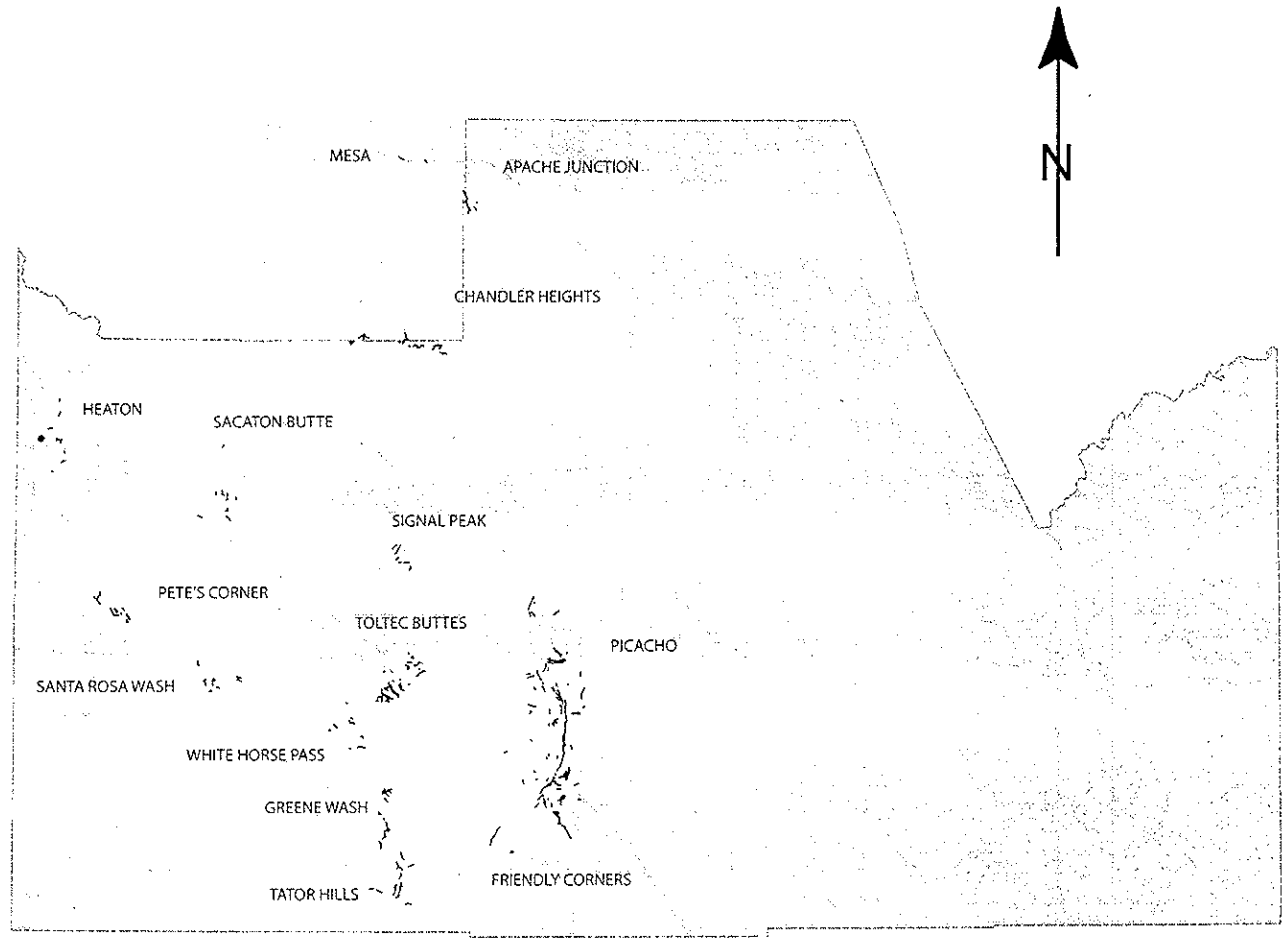
A. J. Blaha, P.E.
Deputy Director
Pinal County Department of Public Works
P.O. Box 727
Florence, Arizona 85232
Ph: 520-866-6411
Fax: 520-866-6325
aj.blaha@co.pinal.az.us

PINAL COUNTY, ARIZONA EARTH FISSURE PLANNING MAP

by Todd Shipman

Arizona Geological Survey Open File Report 07-01, version 1.0
June, 2007

Citation for this map: Shipman, T.C., 2007
Pinal County Earth Fissure Planning Map, Arizona
Arizona Geological Survey Open File Report 07-01,v1,
Sheet 1, scale 1:250,000



This map identifies known or reported earth fissures and indicates study areas for detailed mapping of the fissures by the Arizona Geological Survey. A 1:250,000 USGS topographic base in the background, shows the topography and major physiographic features. Enlargement of this map image does not improve the 1:250,000 scale location accuracy of the mapped features. This map should not be used for site specific evaluation.

Study areas were identified based on three criteria; 1) potential for rapid development of communities; 2) the presence of known or reported fissures; and 3) areas where rapid land subsidence has been reported

Map Index

Black lines on this map represent the approximate location of earth fissures as interpreted on air photos or by field reconnaissance. Many of the earth fissures have not been verified on the ground. The map is incomplete due to 1) masking of fissures by development and agriculture, 2) ongoing changes in fissure length and geometry, 3) the presence of incipient fissures that lack surface expression, and 4) the potential that photogeologically mapped features are incorrectly identified as earth fissures. A blank area on the map does not necessarily mean earth fissures are not present.

County Line Boundary

Names identify areas that will be systematically and sequentially mapped by the AZGS.

Topographic base from USGS 1:250,000 scale maps: Ajo, Phoenix, Mesa, and Tucson.
Contour interval 200 feet with supplementary contours at 100 foot intervals.

Arizona Geological Survey
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Tucson, AZ 85701
(520) 770-3500
www.azgs.az.gov